

MISSOURI resources

Winter 2001-2002 • Volume 18 • Number 4

table of contents

Missouri Department of Natural Resources

Director's Comment

Barging In

by Tracey Berry

The Missouri River received some much-needed relief when hundreds of volunteers cleared its banks and sandbars of trash.

Choosing to Change Bridging the Gap Leads the Way

by Tracey Berry

A Kansas City organization honors those whose choices have made a positive impact on our environment.

Recreation Within Reach

by Jennifer Sieg

Missouri's state parks and historic sites are an experience available to everyone, regardless of physical limitations.

Storm Water Runoff: It's Not Just Water Under the Bridge

by Phil Schroeder

Rain washes chemicals and other contaminants from the streets and gutters, but pollutants can resurface causing problems downstream.

- **News Briefs**

Resource Honor Roll, Letters,
E-Notes, Time Exposures

- **Resources to Explore**

Table Rock State Park

- **Teacher's Notebook**

Career Connection

- **One Last Word**

Resource Protection – Now More Than Ever



Above right: Don Brown, a volunteer at Ha Ha Tonka State Park, uses a disabled-accessible dock to sample the park's fishing action.

Above: The newly redesigned launch at Table Rock State Park gives boaters easy access to Table Rock Lake.



Front Cover As winter's chill settles in, ice floes sometimes decorate the surface of the Missouri River.

Back Cover Kansas City's Union Station houses high-tech Science City, but the old rail station was restored with an eye on the past.

Cover photos by Scott Myers.

Director's Comment



Our world has certainly changed a lot in the past few months. Everyone of us was affected in some way by the tragedy of Sept. 11. In addition to mourning and rebuilding, we're seeing changes in the way we go about our daily lives. Whether it's wearing an identification tag that lets our building security know I work here, or our mailroom staff keeping their eyes open for suspicious mailings, like many of you, I'm realizing my routine is no longer routine.

As the nation works to ensure security here at home, it's a positive step for Gov. Holden to appoint retired Col. Tim Daniel as special advisor to the governor on homeland security. Daniel is assessing Missouri's emergency preparedness plans.

Gov. Holden has also convened a Missouri Security Panel, composed of officials from state government, local law enforcement and other relevant experts. The panel will enhance communication, provide leadership, conduct an intensive statewide security audit and propose recommendations for improvements to public safety. Agency staff are responding to the situation already. We have reviewed our capabilities and needs and developed recommendations for the panel. However, this is a whole new layer of responsibility that we've taken on, in addition to our regular duties.

We are fortunate that the State Emergency Management Agency provides the state with counterterrorism efforts and training. We have and continue to participate in the trainings offered by SEMA for all disaster situations, including terrorism. You can read more about our efforts in One Last Word on page 25 of this issue.

On another issue, on behalf of the department, I'd like to thank all the outgoing term-limited members that have provided their time, talents and expertise in service to the state of Missouri. We will have approximately 75 new House members beginning in 2003. The Senate will have 12 new faces. This will bring about all sorts of changes in how we do business with the legislature. Most importantly, it will require us to do a better job of educating people on what the department does and how we protect Missouri's natural, energy and cultural resources.

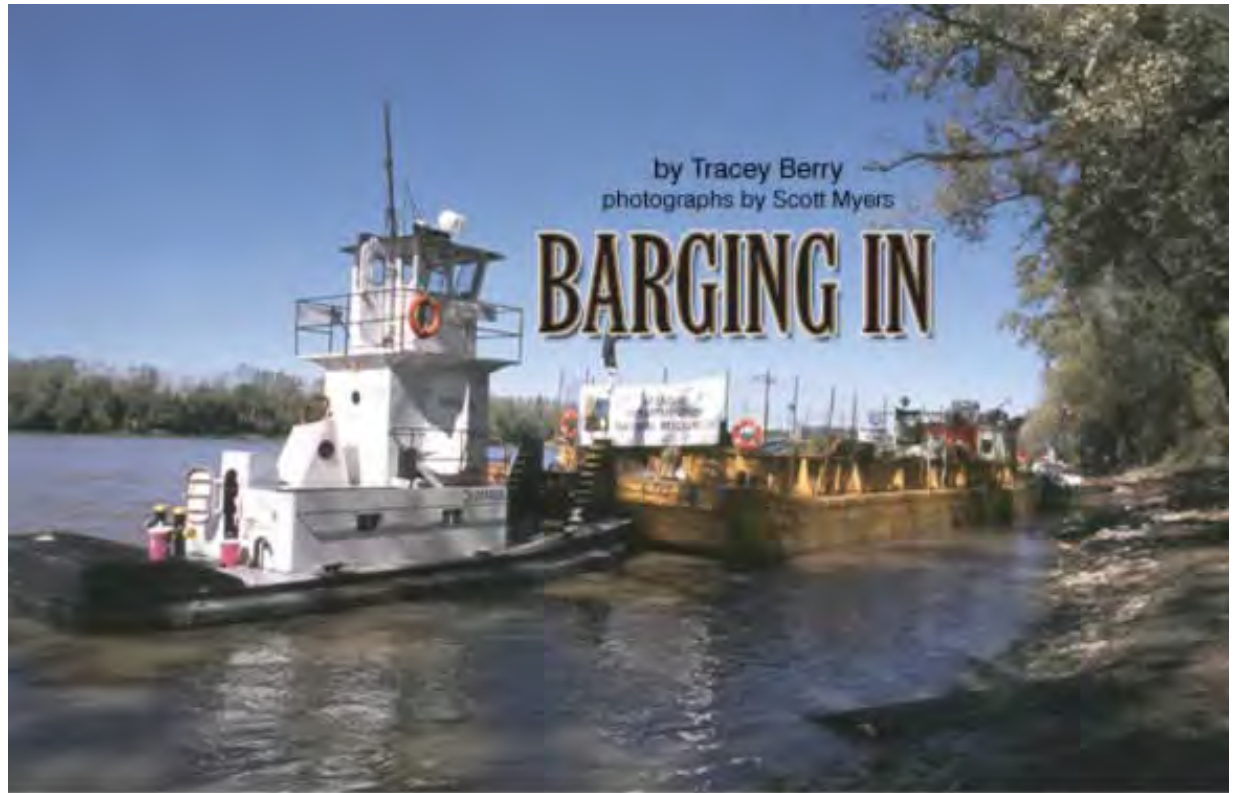
In terms of legislation, we'll be looking at ways to improve or make it easier for people to clean up brownfields and get property into production. We want to encourage the cleanup of brownfields, which protects the environment and stimulates economic growth at the same time. It also promotes the redevelopment of our core cities, something that Gov. Holden supported with an executive order earlier this year.

As for us, we will continue to focus on our three themes: water, energy and efficient government. I look forward to hearing from you. Have a safe and happy new year.

Steve Mahfood
Missouri Department of Natural Resources

MISSOURI resources

Winter 2001-2002 • Volume 18 • Number 4



by Tracey Berry
photographs by Scott Myers

BARGING IN

The tugboat and barge used to haul trash from the Missouri River and transport it to the St. Louis area for recycling are moored near Easley.

Treacherous rapids, rattlesnakes and pictographs left by American Indians greeted Meriwether Lewis, William Clark and their fellow members of the Corps of Discovery exploring the Missouri River 200 years ago. While rapids, snakes and some of the Indian artwork remain, modern-day adventurers are as likely to encounter rusted bed springs, mountains of beer cans and the all-too-common discarded snow tire - sometimes complete with a less-than-shiny wheel.

However, area residents, working alongside government and nonprofit agencies, set out to reverse the river's course of degradation recently. On a bright Saturday in October, hundreds of volunteers descended upon the Big Muddy to remove a hundred years of junk that had accumulated along her banks, sandbars, roads and trails.

"A lot of people think the Missouri is just a big, dirty, dangerous river," said Steve Johnson, project manager for Missouri River Communities Network. "We want to promote the idea that it's one of the most beautiful natural resources in Missouri and it's worth taking care of."

Missouri River Communities was one of the agencies that teamed up with the Missouri departments of Natural Resources and Conservation and the U.S. Army Corps of Engineers to conduct a river cleanup. Chad Pregracke of East Moline, Ill., who has directed cleanups of the Mississippi and Illinois rivers, led the groups. Pregracke's nonprofit organization, Living Lands and Waters, towed a barge up the Missouri River to Easley, approximately 25 miles northwest of Jefferson City. The barge served as the floating headquarters of a mammoth effort that extended 34 miles from Hartsburg to Rocheport.

It was a trip that almost did not happen.

Documentary filmmaker Jim Karpowicz of Columbia first conceived of the river cleanup a year earlier. He approached Pregracke and requested the help of Living Lands and Waters. Pregracke agreed. During the ensuing months, Karpowicz enlisted the aid of Missouri River Communities, state and federal agencies and other interested groups.

Pregracke purchased a tugboat at a river-bottom price in January 2001. The old tug required extensive work including a new engine, transmission, lights and propeller shaft. The overhaul took place in Minneapolis with completion scheduled for June. However, two weeks before the planned Missouri River cleanup, the tug was only just finished. With approximately 1,000 miles to travel down the Mississippi River at speeds of up to 10 mph and then up the Missouri at top speeds of 4 mph, it literally was a race to Easley for the refurbished tug and its unwieldy barge.



Volunteers boarded the barge to sort and separate the junk.

"Do you know how much we were sweating that barge?" Karpowicz said.

In the weeks before the cleanup, Karpowicz could only cross his fingers as he anxiously tracked the barge's progress. Meanwhile, scouts took to the water to plot locations of trash along the river. With almost no rain, the river level dropped, and evidence of years of dumping surfaced.

The morning of the event, Pregracke's barge was safely anchored at the midway point of Easley as volunteers arrived there and at Rocheport, Eagle Bluffs Wildlife Area and Hartsburg. Conservation boats ferried volunteers to the flagged trash locations. There, they loaded johnboats with propane bottles, tires, car fenders, a gutted refrigerator, televisions - even a pool table. The junk-laden crafts returned to the barge where they were emptied before embarking on other trash collection excursions.

On the barge, more volunteers clad in work boots, sturdy gloves and life vests sorted and washed the junk - aluminum cans in one stack, bottles in another - readying it for its final destination at a St. Louis recycling center. Pregracke used a Bobcat to haul scrap metal from one end of the barge to the other. An oversized dumpster, filled with old bicycles, plastic drums and cables, bore a tongue-in-cheek sign reading, "Positively No Swimming Allowed."

Meanwhile, another team on bicycles and on foot patrolled [Katy Trail State Park](#), collecting debris along the route and placing it in trash bags for pick up.

As the day progressed, the volunteers gathered for a group photograph to commemorate the Missouri River Relief and to celebrate their accomplishment. They cited different reasons for their involvement.

Karpowicz, an avid climber, frequents the Missouri River bluffs. He said he grew tired of looking at the litter. Johnson said his group hopes to work with small communities along the river to develop their

riverfronts in advance of Lewis and Clark bicentennial celebrations.

Others, like Lori Thweatt of Columbia, simply love the river. "We don't realize that there is this incredible wilderness right here. We go to Colorado, we go to the ocean, and here it is, right in our own backyard."

CHOOSING TO CHANGE

Bridging the Gap Leads the Way

by Tracey Berry
photographs by Scott Myers



Suzy Latore sorts newspapers inside a recycling collection center in Kansas City. She received a Bridging the Gap Environmental Excellence Award.

A Kansas City, Mo., business that supplies large tropical plants to area offices had no market for the older rubber trees and peace lilies it periodically replaces with fresher vegetation. Renting used merchandise to other clients would be unethical, but tossing them into a dumpster was equally distasteful to the plant-loving employees.

In such dilemmas, Don Reck finds opportunity. The director of Kansas City's Habitat for Humanity ReStore began hauling away the older, yet still attractive plants by the truckload. ReStore now sells them to its clients. In one weekend, plant sales netted ReStore approximately \$300 to support Habitat's efforts to provide decent, affordable housing to people in need.

Such cooperation is promoted through Bridging the Gap's Choose Environmental Excellence program. Bridging the Gap (BTG) is a decade-old nonprofit organization based in Kansas City, Mo. Through a variety of community programs, BTG educates people on a local and global level about the interconnectedness of conservation and resource issues. "Bridging the Gap is not a traditional

environmental organization," said Robert Mann, executive director. "We cannot look at environmental problems or social or economic problems separately, we must see that they are all related. Our survival as a species depends upon our ability to find sustainable social and economic solutions that do not destroy the air, water and soil that are critical to our daily life."

Among its programs, BTG operates six community recycling centers in the Kansas City area, sponsors the city's Earth Day festival and partners with AmeriCorps' Volunteers In Service to America (VISTA) program to help low-income homeowners lower utility bills while making their homes environmentally sound.

"Bridging the Gap helps bring together people and businesses that at first glance, seem so different it's hard to imagine much common ground," said Steve Mahfood, director of the Missouri Department of Natural Resources. "But in working together on the unifying issue - the benefit of the environment - these same diverse groups have shared their knowledge and experiences, avoided pitfalls and identified successful ways to conserve and protect resources."

In 1994, BTG began Choose Environmental Excellence - a grassroots program that encourages community members to pinpoint common problems, identifies the parties that should work together to resolve those concerns, and supplies tools needed to bring about a solution. The initial campaign to establish the statewide Choose Environmental Excellence program received financial support from the Missouri Environmental Improvement and Energy Resources Authority (EIERA). "We were pleased to play a key role in the Choose Environmental Excellence program," said EIERA Board Chairman Chuck Banks. "The program has had a tremendous impact across the state and has enhanced environmental awareness, particularly in schools and businesses." BTG's Choose Environmental Excellence (CEE) program has grown to involve more than 1,000 businesses, 1,000 schools and 35,000 individuals. CEE chapters also have formed in other communities around Missouri.

Each year BTG honors schools, businesses and individuals that demonstrate commitment and innovation in their programs. Among the 2001 award recipients were:

Businesses

Habitat for Humanity ReStore

Reck and his K. C. ReStore crew of eight employees keep much more than used plants out of dumpsters. Since opening the doors on its 33,000-square-foot warehouse in June of 2000, ReStore has diverted approximately 162 tons of building materials and supplies from landfills. The impetus for this ReStore came from an alliance between BTG and Surplus Exchange, a reuse center for office equipment.

"It was an opportunity to make a significant difference in the environmental quality in the metropolitan area," Reck said. Grants from the Department of Natural Resources and the Mid-America Regional Council (MARC) Solid Waste Management District, a voluntary association for city and county governments and the metropolitan planning organization for the bi-state Kansas City region, got the program off the ground.

ReStore accepts donations of surplus building supplies primarily from contractors with excess materials and no storage space. In exchange, donors receive receipts for tax deductions and avoid landfill costs. ReStore then sells the doors, windows, wood trim, carpet or shower stalls to other builders, homeowners and, in growing numbers, artists. Profits - \$69,000 in the first year-and-a-half - help fund the organization's home-building program.

"Customers benefit from the deep discounting of materials; homeowners can maintain their property; Habitat benefits. The planet benefits because all the stuff that's in here was headed for landfills," Reck said.

A second Department of Natural Resources grant, in conjunction with a Hallmark Cards Foundation grant, allowed ReStore to initiate a new program that involves salvaging valuable materials from houses that are

scheduled for demolition. ReStore has diverted 15 tons of materials from landfills.

Science City-Union Station

The upbeat cadence of a samba band sounds a greeting from Melody Lane at Union Station's Science City in Kansas City. Young visitors, invited to join the musicians, are handed brightly painted pop bottles filled with rice to add their own individual rhythms to the song - budding musicians turning trash into tunes. Later, the children are taught how to recreate the instruments at home. Meanwhile, in Science City's test kitchens, the hunger for knowledge is sated as the science of food is taught, using only reusable cooking materials.



At Kansas City's Union Station, Heather McCoy recycles using containers that are placed throughout the facility.

Demonstrations and interactive programs are not the only opportunities for recycling at Science City and throughout Union Station, said Heather McCoy, technical operations assistant. The MARC District stepped in with a grant from the Solid Waste Management Fund to help Union Station establish a recycling program. Bins placed around the facility allow staff and the public to deposit aluminum, plastic, newspaper, cardboard, glass and batteries. Since the program began, the amount of materials recycled has doubled, McCoy said. "Once we started, we couldn't stop," she said. "It's not a pretty job, to sort through the recycling and clean it, but (employees) do it happily."

Imaginature

Organic gardening enthusiast Heather Hands began growing wheat grass as a health food two-and-a-half years ago. During a United States Department of Agriculture conference on food security for local farmers that she attended, discussion turned to the need for a central organization to provide distribution services and a connection between growers and restaurants. As her wheat grass venture bloomed into a full-fledged business, Hands decided providing that link herself would be a natural offshoot and she established Local Harvest, a cooperative for local growers.

"There are a lot of challenges when restaurants work directly with local farmers," she said. "Drought and rain can devastate one farmer who has been supplying a restaurant." However, by working through Local Harvest, restaurants can be assured of a consistent supply of the freshest produce while farmers can increase their income by more efficient marketing. Another of her ventures is the Society Of Urban Producers (SOUP), a nonprofit organization that teaches families about sustainable agriculture, nutrition and organic farming and lets them sell the excess produce they grow back to Local Harvest.



From the individual who reduced his garbage output to one bag of trash every four months to a city that cracked down on illegal dumping, Choose Environmental Excellence (CEE) helps people find innovative solutions to environmental problems at work, school and home. Involvement in CEE is not a requirement for selection as an award recipient, although most of those nominated and chosen are involved in the program. Following is a list of the additional Kansas City, Mo.-area individuals,

businesses and schools that CEE honored this year:

Lynn Laughlin Award for Volunteers

In memory of a former BTG employee, the Lynn Laughlin Award for Volunteers spotlights individuals whose tenacity, spirit and caring are tools of community building. Honorees volunteer with BTG and work with other organizations in the community.

Claire Kucinic of Kansas City has volunteered at BTG's Community Recycling Centers and special events since 1992. Kucinic chaired a steering committee of recycling center volunteers committed to improving the drop off recycling program. She leads her neighborhood EcoTeam.

Everyone who recycles at the Bannister Community Recycling Center in Kansas City knows Larry Schmidt's face. Since 1997, Schmidt has volunteered there nearly every Saturday. He transports recyclables from the group home where he resides to a recycling center each weekend.

School of the Year

Students at English Landing Elementary School in Kansas City planted hundreds of flower bulbs for a long-term project called "Operation Green Thumb." Students, teachers and community members created an outdoor classroom. The school's science lab is dedicated to hands-on learning such as making recycled paper and simulating landfills. This year, English Landing joined the Leadership in Environmental Action Projects (LEAP) program.

Honorable Mention

The Islamic School of Kansas City began participating in LEAP in 2000 and students have focused on expanding the paper recycling program. Students participated in a park cleanup, submitted entries for an air pollution poster contest and visited an aluminum recycling plant.

Students and teachers at Mason Elementary in Lee's Summit recycle aluminum cans and office paper. The school population is educated through an environmental bulletin board, calendar and monthly newspaper. The ecology club planted 2,000 bulbs at the school and made picture frames out of recycled items as well as holiday birdseed ornaments.

Awards for Individuals

Jackson County Recycling Committee Chairman Chris Bussen supervises and implements all aspects of the county's recycling programs. Under his leadership, Jackson County has begun recycling paper, aluminum, light bulbs, ballasts, cardboard, paint, metal, computers, phone books, plastic, printer toner cartridges, batteries and plastic foam products saving taxpayers more than \$250,000.

At Hallmark Cards Inc., Charlene Green is an environmental champion. She established and maintains a supply exchange where unused office supplies can be made available for others in the company, reducing storage needs and saving more than \$60,000 annually. She hosts environmental seminars, "Taming the Paper Tiger" training and brought the Clean Out Your Files Day program to Kansas City.

Dan Heryer is the president of Kansas City's Rockhurst High School Ecology Club, supervising a school-wide recycling program. He initiated negotiations with a local waste management company to expand Rockhurst's recycling program to include plastic. A leader in the LEAP team at Rockhurst, Heryer teaches students and faculty about the waste stream and its effects on the environment.

Alan Steinlage does just about everything one can when it comes to conserving energy, water and natural resources. In fact, according to BTG, he creates only one bag of garbage every four months. He coordinates an extra recycling pickup in his neighborhood and celebrates an "environmental Christmas" by creating decorations from natural items, then putting them outside to feed animals.

Honorable Mention

Sandy Corder-Clootz individually has established recycling programs at several restaurants. She has a Web site [snailherder.com], which offers "how-to" information about recycling different materials.

Sue Edwards organizes recycling in her church and neighborhood. She finds outlets for recycling rare or unconventional recyclables. When possible, she incorporates fundraising into recycling and donates the proceeds to local nonprofit organizations.

As co-chairwoman of the Grain Valley Choose Environmental Excellence chapter, Traci Herman goes the extra mile in recruiting business, volunteer, citizen and governmental help. While developing a drop-off-recycling center for the city, she still finds time to organize neighborhood cleanups and Clean Out Your Files Day events.

Ruth Geischen of Kansas City is a recycler and community organizer. Volunteering for numerous groups, she carools and creates organic gardens. She also is a charter member of Hickman Mills Friends of School Libraries, which organizes a used book sale each year. Money raised is used to bring writers to the school district.

Awards for Businesses and Organizations

The rapidly growing city of Grain Valley is educating area builders to reduce the amount of construction waste going to landfills. The city participated in a household hazardous waste cleanup and hosts annual spring and fall citywide cleanup weekends each year. The mayor and board of aldermen passed a resolution to become a Choose Environmental Excellence Community in 2000.

Kansas City's Environmental Crimes Unit (ECU) was the first municipal-level organization in the area dedicated to combating illegal dumping. The ECU has a 100 percent conviction rate in illegal dumping cases. It has reduced the number of illegal dumpsites in the city and resolved 90 percent of all complaints to the illegal dump hotline.

Throughout 2000, the City of Kansas City, Mo., moved aggressively toward full implementation of an Environmental Management System. The city adopted an environmental policy statement, assigned environmental responsibility within the city system, standardized core elements of an environmental management program, and mandated annual environmental audits for all city facilities that resulted in more than 700 improvements.

The Northeast News promotes recycling in Kansas City and publishes environmental articles for its readers. The paper recycles newspaper overruns, cardboard, mixed paper and ink cartridges. Heating and cooling systems are on timers for efficiency.

The Platte County 4-H and University Outreach & Extension have started a number of environmental programs, including Teen Environment Teachers. For the past six years, teens have been recruited, trained, critiqued and supported to teach in elementary schools, reaching 200 to 400 students each year. Other programs include a Christmas tree chipping project, tire recycling program and "Shopping With the Environment in Mind" campaign.

Individuals

Suzy Latore

In her work with the City of Kansas City, Suzy Latore helps coordinate neighborhood workshops where residents determine what they can do to improve their community. She is involved in the city's Clean

Sweep program, where neighbors choose from a menu of city services, such as tree trimming, household hazardous waste collection and tire pickups. Latare has coached two EcoTeams, another neighborhood-based program, which encourages people to examine their water and energy consumption, transportation choices and trash generation.

Latare has been described as a "stealth environmentalist" who treads lightly on her natural surroundings by recycling, using public transportation and shopping at thrift stores. She eats a vegetarian diet, in part to oppose factory farming, which she contends can contaminate the ground and deplete water supplies.

For a complete list of 2001 Kansas City, Mo.-area winners, see, "Making A Difference," on page 7.

A number of other communities around Missouri have established Choose Environmental Excellence affiliates or are in the process of forming groups.

For more information, contact the CEE chapter in your area:

St. Louis - Choose Environmental Excellence-Gateway Region, Laura Neuman, (314) 772-8787, [www.ccegr.org]; Springfield, Barbara Lucks, (417) 864-2005;
Branson/Tri-Lakes Area - Environmental Excellence Challenge, Debbie Redford, (417) 337-8566;
Warrensburg, Barbara Carroll, (660) 747-9131, ext. 233;
St. Joseph, Kitty Schubert, (816) 271-4620;
Grain Valley, Traci Herman, (816) 229-6275;
Lee's Summit, Bob Dennis, (816) 969-7516; and
University of Missouri at Kansas City, Jerry Hornig, (816) 235-1398.

BTG contends that environmental excellence is a choice that most individuals, businesses and community groups can make by taking simple steps: carrying reusable cups instead of using disposable materials, composting vegetable and fruit scraps, placing cloth roll towels in restrooms and refueling vehicles in the evening to reduce gas tank emissions that worsen ground-level ozone. To learn more about simple steps you can take at home, in your workplace and in your community, visit BTG's Web site at [www.bridgingthegap.org] or call 1-888-895-3605.



Environmental Santa-tation

When the turkey leftovers are gone, the mailbox stuffed with credit card bills and the carpet blanketed with pine needles, it may be time to get rid of the Christmas tree. Yard waste, such as trees, has been banned from Missouri landfills since 1992. While many communities have a Christmas tree collection program, there are other environmentally sound ways to dispose of the Tannenbaum.

Decorate the tree for wildlife. Extend the tree's use by placing it outside and stringing it with popcorn and cranberries. Birds, squirrels and chipmunks also will appreciate pine cones smeared with peanut butter and coated in sunflower seeds, apple rings or halved oranges that have the juice and pulp removed and are refilled with unshelled peanuts. Place the trunk in a hole, tamp the dirt down firmly around it and stake it for extra security.

Make Christmas tree mulch. A chipping machine can turn an old tree into mulch for use in planting beds.

Build a fish habitat. Placing a tree in a pond will attract fish of all sizes. Tie a cement block to the stump and drop the tree where it will be covered by no more than six feet of water. If no boat is available, wait until the pond is completely frozen over and drag the tree to a spot where it can drop when the ice melts.



Build a brush pile for wildlife. Brush piles provide cover for small mammals, birds, amphibians and reptiles. Use large rocks, logs or tree stumps for the base to allow small animals access to the interior of the pile. Trees then can be stacked up to six feet high on the base.

Remove all ornaments, tinsel and lights before disposal. Trimmings can contaminate mulch, pollute water and harm wildlife. Trees flocked with artificial snow may require special handling. Contact the [Missouri Department of Natural Resources](#) at 1-800-361-4827 for more information.



Letters

I enjoy reading your magazine very much. However, in the [Fall, Vol. 18 No. 3 issue](#), I had difficulty reading the small print that was overlaid on some of the photo spreads. I think it was even smaller than what is used in the new phone books. The combination of small type and a textured background made these articles difficult to read. Please use a large type font in the future, and better yet, stick to a standard white background for the story material.

Stephen H. Wagner
St. Louis

Editors Note:

Thanks for the input. We agree some of the backgrounds behind the text were too busy and we will try to avoid distracting backgrounds in the future. Sometimes different backgrounds and varied type sizes are used to let the reader know that the text is separate but related to the main story.

Enclosed is the card we should have returned last fall. We just found it with some papers in a desk drawer.

We have read and enjoyed *Missouri Resources* for years. We have discussed these articles with our children and they have used information in their schoolwork. Soon, there will be grandchildren doing the same. We keep and file every issue for reference.

Our last issue was [Fall, 2000, Vol. 17 No. 3](#). Is there any way we can receive the back issues we missed when we renew our subscription? If there is a charge for this, please let us know.

Bill Yates
Blue Springs

Editor's Note:

We have received many requests like this from subscribers who received the yellow subscription renewal notices but missed one or more issues before they returned the card. We will fill back issue requests as long as supplies last, and there is no cost to Missouri subscribers.

Letters intended for publication should be addressed to "Letters," *Missouri Resources*, P.O. Box 176, Jefferson City, MO 65102-0176 or faxed to (573) 751-7749, attention: "Letters." Please include your name, address and daytime phone number. Space may require us to edit your letter. You also can [e-mail](#) *Missouri Resources* staff.

News Briefs

St. Louis Area Set to be WOWed



St. Louis-area residents will have a chance to learn to fish, camp, and make nature crafts close to home when [Wonders of the Outdoor World National Outdoor Recreation School](#) is held May 3-5, 2002, at [Dr. Edmund A. Babler Memorial State Historic Site](#) near Wildwood.

Wonders of the Outdoor World (WOW) is designed to teach participants how to enjoy a wide range of outdoor recreation activities while practicing personal safety and outdoor responsibility. Outdoor skill courses are designed for either the beginner seeking adventure or the seasoned professional looking to increase specific skills. Experienced professionals teach all courses. The courses will be offered at the state park along with locations at state conservation areas and St. Louis County parks.

The St. Louis workshop is similar to the successful WOW program held annually at [Roaring River State Park](#) near Cassville. The Missouri Department of Natural Resources, one of the main sponsors of the event, encouraged the St. Louis workshop in an effort to offer the opportunity to urban residents who otherwise may not have access to outdoor experiences.

Information packets about WOW will be available in January 2002 by calling (636) 441-4554 or e-mailing wow@mail.conservation.state.mo.us. For more information, visit the Web at [www.wowstlouis.com].

Besides DNR, other sponsors of WOW include the Missouri Department of Conservation, U.S. Forest Service, University of Missouri Extension and St. Louis County Parks.

Gateway Clean Air Reaches Milestone



The [Gateway Clean Air Program](#) reached a milestone in late September - the millionth vehicle emissions test was conducted in the St. Louis region.

"This is an exciting moment for the program," said Steve Mahfood, director of the Missouri Department of Natural Resources. "This brings us one step closer to fulfilling our goal of improving air quality in the St. Louis region." Since April 2000, the Gateway Clean Air Program has been testing vehicles with model years 1971 and newer.

The program also has made efforts to improve wait times and decrease damage claims. ESP Missouri, the

contractor hired by the department to conduct the tests, has executed its Operations Improvement Plan to improve safety and service.

The Gateway Clean Air Program is part of Missouri's efforts to reduce ground-level ozone, or smog, in the St. Louis region. The program provides an opportunity for motorists to do their part to help clean the air where they live and work.

Motorists with questions about vehicle emissions testing may call the Gateway Clean Air Program information line at

1-888-748-1AIR or visit the Web site at [www.gatewaycleanair.com].

Waste Generation Tied to Economy



Missouri is now diverting an estimated 38 percent of its waste from landfills. However, statistics gathered by the Missouri Department of Natural Resources suggest that each Missouri resident disposed of more than a ton of garbage during 2000.

"Tracking the generation of solid waste in Missouri is essential in planning and funding waste diversion and recycling efforts across the state," said Department of Natural Resources Director Steve Mahfood. "We are now gathering public input to design a statewide plan to reduce waste generation, reuse discarded materials and recycle resources that can be diverted from disposal."

In 2000, Missouri's population was estimated at almost 5.6 million people. Waste generation was estimated to be more than 10 million tons. Waste generation was estimated at 1.84 tons per person in 2000.

The U.S. Environmental Protection Agency and many solid waste planners agree that waste generation increases during periods of economic growth as consumers purchase more and throw away more.

"Individuals who separate their trash and who recycle are doing a good job," said Jim Hull, who directs the department's solid waste efforts. "But major gains in waste diversion can still be made through better handling of food wastes, construction and demolition wastes and industrial and commercial wastes," Hull added. Currently, waste items such as computers, paints, carpets and pesticides are receiving national attention in efforts to obtain help from manufacturers to effectively dispose of or recycle such products.

For more information on Missouri's waste diversion efforts, contact the department's Solid Waste Management Program at

1-800-361-4827 or (573) 751-5401 or visit our Web site at [www.dnr.mo.gov/alpd/swmp/index.html].

Times Beach, Other Sites Dropped From List

The U.S. Environmental Protection Agency (EPA) has deleted the Times Beach site, Shenandoah Stables and Kem-Pest Laboratories from the National Priorities List, a roster of the nation's worst hazardous waste sites.

The Times Beach site, located 20 miles southwest of St. Louis, was contaminated when oil containing

dioxin was sprayed on roads for dust control in the early 1970s. Since the completion of the \$200 million cleanup, the area has become the Route 66 State Park.

The Shenandoah Stables site is located near Moscow Mills. In 1971, the horse arena became contaminated with dioxin when a St. Louis waste-oil hauler sprayed it with approximately 2,000 gallons of contaminated oil for dust control. The contaminated soils were transported to the Times Beach facility for incineration to destroy the dioxin. Cleanup activities have ended threats to the public health and environment.

Kem-Pest Laboratories is located near Cape Girardeau. Beginning in 1965, Kem-Pest formulated various pesticide products, including liquid pesticides, granular insecticides and pesticide dust. Pesticides and various volatile organic compounds were detected in soil samples. Through cleanup activities, the Kem-Pest Laboratories site has reduced the threat of exposure to hazardous materials to the nearby population.

Removal of these sites from the National Priorities List means the Department of Natural Resources and EPA agree no further response is required to protect human health or the environment.

For more information, call the department at 1-800-361-4827 or (573) 751-3176.

Trail, Overlook Enhance Parks

The opening of two new facilities will enhance visitors' experience at [Big Sugar Creek State Park](#) in McDonald County and [Taum Sauk Mountain State Park](#) in Iron County.

A three-mile loop trail that provides access to Big Sugar Creek State Park opened this fall. Named the Ozark Chinquapin Trail after a rare tree found in the park, the trail wanders through the Elk River Breaks Natural Area where visitors can experience a vanishing landscape that once was common in the area. They also may spot 134 kinds of birds, plus animals distinctive to the region such as armadillos.

The trail is the only facility open at the park. Future plans call for a day-use area, special-use area for organized youth groups and a canoe launch on Big Sugar Creek.

Viewing the St. Francois Mountains is easier now with a new scenic overlook at Taum Sauk Mountain State Park. The overlook has been developed along the main road through the park and gives visitors views of surrounding landmarks such as Shepherd and Buford mountains. The overlook also contains exhibits that interpret what visitors see in the landscape. Information is provided on glades and what people can expect to see on these rocky openings cloaked in prairie grasses.

New Loan Program Given High Rating

The [Environmental Improvement and Energy Resources Authority \(EIERA\)](#) will issue bonds through the Missouri Energy Revolving Fund, a new loan program housed in the department's [Energy Center](#). The low-cost loan program, regarded as the first of its kind in the nation, has been given a rating of Aa2. The loan program will be used to fund improvements to make public buildings more energy efficient, thereby reducing energy costs. Moody's Investor Service, a rating firm based in New York, assigned the rating. It is one of the highest ratings that can be assigned and reflects the size, security, and quality of the loan program and the high quality of EIERA-issued bonds in the financial markets.

The loan program has an \$11 million reserve as security against any potential deficient loan payments. Among the participants in the first \$5.5 million issuance will be the city of St. Louis and the St. Louis Public School District. These and other participants in the loan program will repay their debts in specified payments over an eight-year period.

One Last Word

Resource Protection – Now More Than Ever

by Connie Patterson

photograph by Scott Myers



State Park Ranger Michael Jones (front) and Ranger Alan Barton conduct security checks at the entrance to the Jefferson State Office Building in Jefferson City.

I was in a hotel room in Marshall, Texas, when I heard the news on Sept. 11. My husband and I were on our way to a vacation in Corpus Christi. I had just walked back into the room when he told me that someone had bombed the World Trade Center towers and the Pentagon. Having lived in New York City about 15 years ago, I burst into tears as I heard about and saw the destruction on a city I once called home.

I'd been home a few days when one of my close friends called me, asking what the department was doing to protect our citizens from terrorist activities. She was especially concerned about our water supplies. I reassured her that we've been in contact with every one of our suppliers, helping them update and review their emergency operation plans. All community water systems in Missouri are required to have such a plan, which contains very detailed information about each system's operation. Lists of alternative water systems and sources, such as tank trucks, that need to be available if a system were incapacitated, as well as other information is included.

We're also working with the Missouri Water Well Association to advise well owners on how to protect their private wells.

The Missouri Department of Natural Resources also has been working with the U.S. Department of Transportation to conduct "security sensitivity visits" with all the hazardous waste haulers in Missouri. Hazardous waste haulers are just a small part of the hazardous materials industry. Currently, 346

companies, with a total of about 8,000 vehicles, are licensed to haul hazardous waste in Missouri. Department staff are visiting the 75 to 80 of these companies that are based in or have terminals in Missouri.

We are inspecting hazardous-waste-hauling vehicles at truck terminals, company facilities, hazardous waste cleanup sites and weigh stations. This includes inspections of the vehicles, placards and certifications. It also includes carrier inspections at the terminal or facility, a review of all trucking records and driver's qualifications, logs, licenses, medical exams and drug testing records.

Another area of concern is our energy supply. With the threat of future terrorist acts, we no longer take for granted the vast network of pipelines and power lines connecting us to our way of life. We suddenly recognize the fragility of our energy supply and delivery system as the market reacts to the threat of disruptions. In Missouri, a fuel pipeline and terminal closed temporarily as a precautionary step. Within hours, long lines appeared at gas stations across the state.

The Department of Natural Resources is authorized by Missouri law to carry out energy emergency planning and to develop state energy conservation programs. This involves coordination with the Public Service Commission, state and federal emergency management agencies and energy industries, and includes preparing plans for reducing energy use in the event of an energy or other resource-supply emergency.

Although no specific information indicates any natural-resource infrastructure may be at risk, it's important to have adequate measures in place to lessen facility vulnerability. And, believing that an ounce of prevention is worth a pound of cure, we want to prepare facilities and ourselves for response and recovery should something occur.

We all take clean water from our kitchen EAO, gasoline for our cars and electricity for our homes for granted until events like those of the last few months potentially threaten their quality and availability. Those of us at the Department of Natural Resources are doing all we can to ensure that natural resources are protected and your access to them is secure.

A couple of weeks after the September attacks on New York and Washington, D.C., the State of Missouri held building evacuation exercises for its employees. I couldn't help but contrast my experience to that of the people in the World Trade Centers and the Pentagon as we all marched, single-file, down the 14 flights of stairs in our building. There was a very solemn atmosphere, despite the sunshine and warm weather outside the building. That tragedy touched all of us, probably in ways we won't even know until more time has passed, and we can reflect on the new world that awaits us.

Connie Patterson is communications director for the [Missouri Department of Natural Resources](#).



Emily White of Kansas City, who also uses a wheelchair, enjoys the view at Ha Ha Tonka State Park.

For more than eight decades, the Missouri state park system has preserved the best of our state's most outstanding natural landscapes and cultural landmarks. This would mean nothing if these resources were not available for all people to enjoy. Providing interpretation and recreation for Missourians is part of the Missouri Department of Natural Resources' Division of State Park's mission. However, at the time these parks were developed many years ago, accessibility for people with disabilities was not taken into consideration. Today, the department has worked to make the parks system accessible, regardless of a person's physical abilities or limitations.

In 1990, the Americans with Disabilities Act (ADA) was signed into law with the intent to make American facilities more accessible to people with disabilities. The new law stated that all new construction and modifications must be made accessible to persons with disabilities, and barriers to existing facilities must be removed if readily achievable.

As a result, the department began one of the largest capital improvement projects in its history, making state parks and historic sites accessible to all users to the fullest level of access feasible. "The department did more than just comply - we made a commitment to fully implement the intent of the law," said Douglas Eiken, director of the department's Division of State Parks.

The process began with appointing staff to an ADA team to research compliance alternatives in a variety of areas. The ADA team devised a compliance plan to determine physical modifications to structures and grounds that would be needed. The plan also listed the department's goals, which included everything from making facilities physically accessible to providing information in a variety of media formats.

“...everyone should have the opportunity to enjoy the
outstanding natural and cultural resources preserved
in state parks and historic sites...”

– Douglas Eiken, director of the department's Division of State Parks

"We feel that everyone should have the opportunity to enjoy the outstanding natural and cultural resources available in state parks and historic sites and that we need to offer each person an experience, through alternative means if necessary, that would allow them to grasp the essence of the park or historic site they are visiting," said Eiken. The objective is to provide all visitors a "like experience," and the opportunity to participate in programs and use the resource facilities.

To better serve the population that would be affected by the changes, the department solicited volunteers for an ADA Advisory Committee. Of more than 100 people who showed an interest in serving on the committee, 18 people of various disabilities, accessibility expertise and geographic location were chosen. According to Jim Crabtree, former director of the Division of State Park's Planning and Development Program, the committee members soon proved to be an invaluable resource.

Ann Johnson, a wheelchair user and member of the ADA Advisory Committee, felt that the division "had a genuine desire to make the parks accessible to everyone. They didn't just apply numbers; they went beyond code requirements and looked at the whole experience of a person visiting their facilities," Johnson said.

"I felt that it was important to have a mixture of Department of Natural Resources staff and people with disabilities working cooperatively on this project," Johnson added. "I know my needs, but don't know their side, which often resulted in a compromise or a new solution. We looked at projects and often asked, 'Is it usable or a waste of money?' Projects were always completed the 'usable' way. We made recommendations on everything from parking lot surfaces to restroom doors. We also tested areas that were previously signed as accessible to see if they actually were, and if not, we made suggestions on how to make them more user-friendly," Johnson said.

With the new committee members in place, the ADA Advisory Committee focused their attention on three areas of primary importance: physical design, employee training and interpretation / education. Subcommittees were formed for each area.

**“I felt that it was important to have a mixture of
Department of Natural Resources staff and people with
disabilities working cooperatively on this project.”**

– Ann Johnson, a wheelchair user and member of the ADA Advisory Committee

A design subcommittee focused on identifying barriers during the design phase of new projects and renovation on existing facilities. Renovation projects provided a special challenge to avoid having the modifications appear as "add-ons" or take away from the park setting. When the department began this project, federal design standards for making outdoor recreation accessible were not yet developed. In fact, the efforts of the department's Division of State Parks formed a basis for the current national design standards.

The design process began with committee members and division staff traveling to each park facility in Missouri to document accessibility barriers and explore solutions. Designs for use areas that were developed and tested emphasized "programmatic accessibility." Programmatic accessibility is the connection of accessible elements to the experience of the activity being offered. For example, making a picnic area accessible was not complete just by placing an accessible picnic table in the area. Efforts were made to make sure the picnic table could be accessed from the parking lot and that accessible paths connect the picnic table to accessible restrooms, water fountains or other facilities in the area. The goal was to provide an experience similar to that of any other park user.

Two specific projects became goals of the training subcommittee - a training manual specifically designed for training division and state-operated concession staff and the production of a training video. A 16-page booklet entitled, "Making Our Services Accessible to Everyone," was produced. A 20-minute training

video also was developed focusing on several scenarios that exhibit routine contacts within a park or historic site setting. Six common disabilities, including visual, hearing, mobility, hidden, developmental and cerebral palsy, were used in the scenarios. Committee members with these disabilities discussed their disability, expressed how they expect to be treated and gave suggestions in regards to how and when staff should offer them assistance.

Both the booklet and video have been used in training full-time and seasonal naturalists, park superintendents, tourist assistants, historic site administrators, park rangers and concessionaires. Additionally, the video has been shared with numerous other agencies and providers throughout the nation.

According to Janet Massman, a frequent camper at Harry S Truman State Park, whose husband, Michael, has mobility limitations, park staff always are accommodating during their visits. "Park and concession staff have always been very helpful. The staff at the marina makes sure that the boat slip that we rent is just a short walking distance, making access easier for my husband," she said.



Steve Sitton, site administrator at Thomas Hart Benton Home and Studio State Historic Site, shows visitor John Freese of Overland Park, Kan., a flip book that contains photographs taken around the site.

Providing interpretive materials and methods of communication for the public in a variety of formats was the goal of the interpretation subcommittee. Flip books of photographs were placed in parks and historic sites so that individuals can see areas of a historic site or nature trail that otherwise would not be possible. tape recordings and typed scripts for use during audio programs have been produced. Videos are used at some parks and historic sites to interpret the natural and cultural features of the facility or to create a "like experience" for areas that are physically inaccessible. Other projects included making information desks, literature racks and exhibits accessible, providing the division's main brochure featuring all state parks and historic sites in Braille and on tape and installing a toll-free Telecommunications Device for the Deaf (TDD) system.

After the first evaluations of the parks and historic sites' accessibility needs were completed, a budget request was submitted. In July 1993, the Missouri Legislature appropriated \$6.5 million to be spent by the park system on the ADA project. Although it was projected to cost \$10 million to complete the identified accessibility projects submitted, the \$6.5 million budget was enough for the department to take a giant leap forward. The department worked jointly with the Missouri Department of Economic Development in implementing several of the projects, using a work force of at-risk youth, who were selected as part of their department's education and job-training program. In addition, in-house and park crews completed many of these projects making the total investment by the department in excess of \$10 million for the

ADA, despite only the original \$6.5 million being appropriated.

Throughout Missouri, facilities in state parks and historic sites were renovated or reconstructed to accommodate all users. Of the 40 parks and historic sites that offer camping facilities, 36 now have accessible campsites. These campsites offer level, often paved sites with accessible picnic tables, fire rings and water supplies. Nearly all of the campgrounds provide accessible shower houses. Several of the state park system's group camps accommodate all users. Other overnight guests will find accessible motel rooms, cabins, camper cabins and recreational trailers to rent at different parks throughout Missouri.

For day-use visitors, accessible picnic sites and shelters, most equipped with water fountains and restrooms designed for all users, are available at most state parks and some historic sites. For those who enjoy fishing, 11 parks offer accessible fishing docks or ramps. Other facilities available include accessible swimming areas and pools, trails, visitor centers and museums, dining lodges and park stores. Ozark Caverns, a cave within Lake of the Ozarks State Park, is one of the park system's accessible outstanding natural resources. Parking areas near these facilities also have been modified for easy access and provide reserved parking spaces.

Cliff Cockayne, a wheelchair user, is a frequent visitor to [Bennett Spring State Park](#) near Lebanon. Cockayne finds the campground's accessible sites to be very "handy." Although he appreciates the fact that the parking areas, store, lodge, picnic areas and nature center are accessible, fishing is what brings him to the park. Bennett Spring State Park has three accessible fishing areas that Cockayne testifies are "good places to fish." One of the areas is restricted for use by people with disabilities, and he appreciates that the park rangers enforce that rule.

The department also has worked at making historic sites accessible, where feasible. Historic structures, many of which were built in the early 1900s, were not constructed with ADA compliance in mind, and ADA (or any) modifications cannot be made if they destroy the historical fabric of the structure. Efforts have been made at historic sites to provide accessible alternatives so that at least part of the historic structure can be viewed by people with disabilities.

For example, enhanced accessibility, through a cooperative effort between the department and the city of Lamar, now provides an entrance into a section of the lower floor of the Truman home at [Harry S Truman Birthplace State Historic Site](#).

Ann Johnson noted that, "... most people realize that everything can't be made accessible and are okay with limited accessibility as long as there was a good effort made to make it accessible."

“The boardwalk trail and shelter house at Pershing State Park have really improved. I don't see any reason why a person in a wheelchair would have any trouble using those facilities.”

– Karen Collier, a Laclede resident and wheelchair user

Karen Collier, a Laclede resident and wheelchair user, makes frequent visits to [Gen. John J. Pershing Boyhood Home State Historic Site](#) and [Pershing State Park](#). Living in the area of both facilities, she has witnessed the changes implemented at these sites over the years. "The boardwalk trail and shelter house at Pershing State Park have really improved. I don't see any reason why a person in a wheelchair would have any trouble using those facilities," said Collier. She also noted that the portable ramp into Pershing's home made entrance easy and that the exhibits inside Prairie Mound School also are easily accessible.

The department received a lot of positive feedback from park visitors as the projects began and were completed; but not only people with disabilities have commented on the facilities. Families with small children also find accessible paths handy when pushing children in strollers.

The efforts made by the department to comply with the ADA laws received national attention as the guidelines developed received an award from the American Society of Landscape Architects and a Missouri Governor's Award for Quality and Productivity. The information and standards, ADA videos and materials developed during this project were shared with other park providers around the country to be used as guidelines in their efforts to make their recreational facilities accessible. As a result, the department was asked to have a staff person represent the National Association of State Park Directors on the federal committee within the U.S. Architectural and Transportation Barriers Compliance Board. This board is developing guidelines for ADA compliance in outdoor recreation.

The Department of Natural Resources has made great strides toward giving all visitors the opportunity to enjoy Missouri's outstanding natural and cultural resources; however, the job is not finished. As new areas and structures are built and old ones replaced, measures to assure accessibility will be implemented in each project. "We've met most of the basic requirements, but not our goal. It is an ongoing challenge to improve accessibility in all the state parks and historic sites," said Eiken. "Although the groundwork has been laid, the project will never be totally complete."

For more information about accessibility in state parks and historic sites, contact the Department of Natural Resources toll free at 1-800-334-6946 (voice) or 1-800-379-2419 (Telecommunications Device for the Deaf).

Jennifer Sieg is a public information specialist with the department's [Division of State Parks](#).

Resource Honor Roll



Ted Curtis

Ted Curtis serves as the executive director for Trailnet, a nonprofit organization dedicated to creating multi-use recreational trails, conserving greenways, and encouraging walking and bicycling for recreation and transportation in the St. Louis area. Curtis helped start Trailnet, formerly known as Gateway Trailnet Inc., in 1988. Trailnet operates as a land trust, part of a growing network of citizen-based organizations that conserve open space for the public benefit.

Under Curtis's leadership the organization has grown, with income increasing from \$20,000 six years ago to nearly \$2 million last year. Approximately 500,000 people use facilities that Trailnet has developed or managed. Curtis moved from unpaid president to assume the role of executive director in 1993.

Trailnet's activities are focused on greenways, which are linear parks and natural areas often located along streams, rivers, and abandoned rail corridors. Its most visible project is the Old Chain of Rocks Bridge. This former Route 66 crossing was closed in 1968 following the opening of a new interstate bridge. Trailnet leased the bridge from the City of Madison, and with a federal Recreational Trails Program grant, renovated and reopened it in June of 1999. It now is one of the nation's longest pedestrian and bicycle bridges.

The bridge is key to the creation of a 40-mile greenway and trail system between the Gateway Arch, Pere Marquette State Park in Grafton, Ill., and west along the Missouri River to St. Charles, Mo. Known as the Confluence Greenway, the project and the Old Chain of Rocks Bridge are expected to spur economic development and tourism in the area.

Curtis is a long-time resident of Webster Groves. He and his wife use a tandem bicycle to explore the neighborhoods of St. Louis.



Environmental Awareness
members Kathy Ryan (left)
and Sarah Anderson

Kathy Ryan, a reading teacher at Ridge Meadows Elementary School in Ellisville, and the parent of a former student, found a common interest in environmental issues and their desire to share that awareness with the children they were teaching and raising. Together, they formed a committee that created the school's Environmental Awareness Team. Ryan said their goal was to nurture "responsible citizens and reflective consumers."

The Environmental Awareness Team has approximately 75 students involved in its recycling programs. Since the team formed six years ago, its members have recycled an average of 75 tons of paper, 300 pounds of plastic, 600 pounds of aluminum and 200 printer cartridges annually. Paper recycling takes place

throughout the school year, while special drives periodically are held to collect additional recyclable materials. During a four-week catalog drive earlier this year, students collected and counted 47,000 catalogs.

Money raised from the recycling program is placed in the school's science fund and used to buy materials for hands-on science experiments, such as hatching chicks and building and launching miniature experimental rockets. The school also purchased a large saltwater aquarium and students are given the opportunity to name and care for the fish.

The Choose Environmental Excellence-Gateway Region chapter recently honored the team with an Educational Champion Award.

Resources to Explore



At State Park Marina at Table Rock State Park, visitors can arrange a variety of water recreation activities. The more adventurous can parasail or scuba dive.



Branson often is touted as the "Country Music Show Capital of the World," and indeed it is well known for its brightly lit music theaters along Highway 76. But a quiet drive eight miles south of town on Highway 165 will lead visitors to [Table Rock State Park](#) and another famous attraction - the beauty of the Ozarks. Weaving through the scenic White River Hills, visitors will suddenly see an opening in the hills and view the beauty of Table Rock Lake nestled in the valley below.

According to local accounts, Table Rock Lake was named for the large tablelike rock formation in the surrounding cliffs. Such cliffs are typical of Ozarks terrain, revealing millions of years of geologic development and the power of the area's rivers to cut through layers of carbonate bedrock. The White and other Ozarks rivers carved their paths deep into the layers of rock, eroding the soft layers and leaving more durable rock visible as horizontal bands. The bands of limestone and flint also are noticeable along major highways in the region where construction crews have cut through the steep slopes or hillsides.

The White River also formed Table Rock Lake when the U.S. Army Corps of Engineers constructed Table Rock Dam on the river. The dam, completed in 1959, was built primarily for flood control, as well as

hydroelectric power and recreation. It was, in part, the creation of Table Rock Lake that sparked the Branson tourism boom.

Visitors had been traveling to the Ozarks since the early 1900s to enjoy the beautiful scenery and excellent fishing in the area's rivers. But the birth of 43,100-acre Table Rock Lake, which sprawls over Stone and Barry counties in Missouri, provided such excellent opportunities for fishing, boating and even scuba diving that the number of visitors quickly grew. The Ozarks soon became an attractive option for entertainers, developers and business owners who recognized an opportunity to draw in the growing crowds.

However, visitors to the area were not the first to appreciate the Ozarks. American Indians first inhabited the area approximately 10,000 years ago, and artifacts indicate that bluff dwellers lived in the cliffs about 3,000 years ago. The first settlers in the early 1800s were mostly from North Carolina and Tennessee. While others traveled on in search of richer farmland, these settlers forged a life in the rugged Ozark hills because the area reminded them of the homeland they left behind in the southern Appalachian Mountains.

These days, thousands of visitors travel to the Ozarks and spend some time at Table Rock State Park, located on a portion of the lake's 857 miles of shoreline. The 356-acre park displays many of the lush trees that cover the Ozarks hills, such as white, post, and chinquapin oak, eastern red cedar and flowering dogwood. The park also is home to many plant and animal species that make the Ozarks unique from other regions of Missouri. At the park office, visitors can see two smoke trees, which are found in only five Ozark counties. Also specific to the Ozarks, Ashe's juniper, a glade evergreen tree, grows in the state park.

Interesting wildlife found in the park include the long-pincered crawdad, Ozark rock bass, armadillo, roadrunner and the three-toed box turtle. At 6 inches or more, the long-pincered crawdad is Missouri's largest crayfish. It is nocturnal and has long, slender, blue-green pincers and an abdomen that is olive and red in color. Ozark rock bass are found only in the Ozarks and the armadillo, roadrunner and three-toed box turtle, which feeds on understory prickly-pear cactus, live in the Ozark's desertlike glades.

While visitors may not commonly encounter these animal species on their own, Table Rock State Park offers ample opportunity for visitors to see some of the Ozarks' treasures up close and to learn more about them. From May through August, the park's seasonal naturalist organizes educational programs and opportunities to "meet" wildlife at the park's amphitheater. Visitors also can take part in bird watching, lake walks and "spider sniffs," a unique children's activity. Children also have an opportunity to become official Junior Naturalists if they complete a certain number of projects.

The park provides more than 163 basic, electric and full-hookup campsites on a first-come, first-served basis. The campsites are split between two campgrounds, with shower houses, coin laundry and playgrounds available. The most popular campsites are those along the shoreline; from the comfort of their own picnic tables, campers can spend the evening watching the sun sink behind the hills while it sets over the water. In the morning, they can wander from their tents and wake up with a quick dip in the lake. From either campground, visitors also can access the one-mile Chinquapin Trail, which winds around a lake cove and next to a creek branch.

From March through October, water recreation can be found at State Park Marina, which offers a wide



Anglers can rent a boat from the marina to explore the lake for the most rewarding fishing action.

array of rental boats and services. From personal watercraft to fishing boats, visitors can find a great way to explore beautiful Table Rock Lake. The lake is well known for its bass fishing, along with opportunities to catch crappie, sunfish and catfish. Fishing boat rentals are available through November, and the marina staff can recommend some of the best fishing guides in the area.

If lake-goers prefer not to captain their own boats, they can opt for a lake tour on the 48-foot sailing catamaran, which offers daytime and sunset cruises. But there are two more ways to experience Table Rock Lake with the help of State Park Marina - from under the water or high above it. Scuba divers from all over the Midwest come to Table Rock Lake for its interesting dive sites and above-average water clarity. For beginners at least 12 years old, the marina's scuba divemaster offers a Discover Scuba course that requires no prior diving experience. Certified divers can rent gear and sign up for dive trips to some of the marina staff's favorite sites. Finally, visitors who want to experience the lake from above the water can try parasailing high above Table Rock Lake on hourly flights departing from the marina. Guests sail approximately 300 feet above the water, using the newest and safest technology. Fliers take off and land inside the boat and do not have to get wet - unless they want to.

For those visitors who bring their boats from home, a newly redesigned boat launch is located near the north entrance to the park. Day visitors will find new picnic areas near a shoreline sidewalk. Large groups can reserve the park's sheltered pavilion, which includes playground equipment and is conveniently located near the shoreline, an open field and sand volleyball pit.

With Table Rock State Park located a mere eight miles from Branson's city limits, visitors easily can experience all that Branson has to offer - from the bright lights of the city to the scenic beauty of the Ozarks hills and Table Rock Lake.



Sites are available at Table Rock State Park to accommodate a variety of campers, from those who want a peaceful place to pitch a tent to those requiring full hook-ups.

The park's convenient location also makes it an extremely busy Ozarks attraction. Last year, the park's traffic counters hit six digits as 869,736 visitors poured through its entrances. With so much use, it takes a great deal of effort to maintain the beauty and environmental quality of the state park. The park staff work to prevent erosion by mowing as little of the unused areas as possible and conducting controlled management burns to prevent the undergrowth from choking back native trees and wildflowers. These practices also conserve habitat for wildlife that may lose their homes when nearby areas are developed.

Table Rock State Park is unique because it provides recreation and a natural setting in a bustling tourism area. Visitors can assist with maintaining the natural beauty of the park by refraining from littering, picking wildflowers, or cutting timber for firewood. With the help of its visitors, [Table Rock State Park](#)

will remain a source of recreation and environmental preservation for many future generations of Ozarks residents and visitors.

Lena Hartley is a freelance writer from the Branson area.

Teacher's Notebook

Career Connection **From the Ground Up** story and photos by Tracey Berry

With a well-worn backpack slung over her shoulder, Edie Starbuck moves through the dense vegetation covering the bank of a creek bed. Fifteen years of experience - she began in this field when still a student working part time - shows as she carefully precedes each step with a wave of a stick intended to clear unseen spider webs from her path. Hiking boots and jeans protect her legs from the thorny underbrush. A warning from the landowner who gave his permission to explore the creek still rings in her ears - "Watch out for snakes," he cheerily offered as she set off.

When the vegetation makes the edges of the creek bed impassible, she looks up the bank, resigned to the fact that it's time to backtrack a bit and find an alternate route around the blockade of trees and shrubs.

"I guess the deer, or whatever makes these tracks, know what they're doing. When I see one going up the bank, I probably should go up," she muses. Late in a muggy August morning the hike quickly becomes a hot, sweaty trek, but Starbuck pushes on. "It's hard for me to stop," she offers apologetically.

One might think she has rocks in her head, but it would be more accurate to call them bedrock outcrops. Starbuck is a geologist with the Missouri Department of Natural Resources' [Geological Survey and Resource Assessment Division](#).

She is in the Missouri River community of New Haven to determine which minerals compose the bedrock in an area of approximately nine square miles. She will use the data she collects to create a map of the subsurface structure.

"Oh good, rocks," she calls out as she discovers a flat stone ledge next to the shallow stream. Taking a hammer from her backpack, she whacks a piece of the stone from the outcrop and examines it under a magnifying glass. From the texture and crystallinity, she determines that it is a fine-grain dolostone. She notes the location on a topographic map and records the information in a notebook. Once she returns to her office, the data will be plotted to create the map using a computer program.

The discovery in 1986 of tetrachloroethylene (TCE) in New Haven's two public drinking water wells prompted the mapping work. TCE is a solvent used by dry cleaners and some factories that has been linked to liver ailments and cancer. As part of its investigation of the contamination, the U.S. Environmental Protection Agency (EPA) determined that no detailed bedrock mapping had previously been conducted in the area. Needing the information to track the possible source of the TCE, likely routes of migration and to determine cleanup options, EPA asked for the department's assistance in surveying the area.

Geologic maps, such as the one Starbuck is creating, have applications beyond guiding environmental

clean-up projects, she notes. They are valuable tools in determining earthquake risks and land-use planning. Other scientists use such maps to study how the composition of bedrock affects the type of vegetation in an area.

To qualify as a geologist with the department, candidates must possess a bachelor's degree from an accredited four-year college or university with major course work in geology, engineering geology or a closely related field.



Clarence Meyer of New Haven shows geologist Edie Starbuck the location of a spring on his property. The spring will be sampled as part of the investigation of TCE contamination in the area.

Starbuck has been a geologist with the department for 15 years. She has spent the past five working in mapping. She earned both bachelor's and master's degrees in geology from the University of Missouri-Rolla. However, her early plans involved studying engineering.

"I always liked - all kids do - looking at (and) collecting rocks and fossils, but I didn't look at it as a career until I got to college," she said.

While Starbuck and some of her colleagues within the Geological Survey Program are involved primarily in mapping, there are many other tasks carried out by the department's 34 geologists. Some investigate liquid, solid and hazardous waste disposal sites, monitor groundwater and contaminant migration and review cleanups. Geologists advise cities, engineers and the general public about proper well, lagoon, dam and foundation construction, oil and gas well excavations and how to safely plug abandoned wells. They also carry out field investigations to ensure that private drinking water and monitoring wells are drilled in accordance with regulations. Other geologists determine where the earth might yield limestone, oil, coal or lead.

In addition to the academic requirements, geology demands certain personality traits, Starbuck says. While she enjoys the variability of her work, which sometimes takes her out into the field and at others has her behind the computer back in her Rolla office, mapping requires self-motivation and the ability to stay focused during long-term projects.

After following the creek bed for approximately a mile, Starbuck breaks for lunch and then resumes her quest for signs of New Haven's bedrock outcroppings, this time following a railroad track that runs between the river and its bluffs.

"You need to enjoy solitude to enjoy this kind of work," she says, noting that she is frequently on her own during these explorations. "Safety is something we've talked about and decided carrying a cell phone is the best solution."

Geologists also must be willing to brave a number of weather conditions. Although the New Haven

mapping took place during the summer heat, the work usually is conducted in the fall and winter when foliage won't obscure geologic features. Nor is weather the only curveball nature is apt to throw. Returning from the trek down the railroad tracks, Starbuck steps toward an overpass to peer at the creek below. Suddenly a snake, sensing it is in danger of being stepped on, darts out and lunges into the water below.

Unruffled, Starbuck glances after the skittish reptile, her own feet planted firmly on bedrock.

For information about the department's opportunities in geology, call our [Human Resources Program](#) at (573) 751-2518.

MISSOURI resources

Winter 2001-2002 • Volume 18 • Number 4



The Circle Mine in Oronogo, just east of Joplin, is believed to have at one time been the largest surface pit lead mine in the world. This photograph was taken around 1940. Theo Farry, a Methodist minister and friend of the mine owner, Guy Waring, and Waring's wife, Jennie, is standing in the dark suit and hat. The man bending over is believed to be Waring. Farry, born in 1846, lived to be 102 years old. His great-grandson, Tom Scheerer of St. Peters, submitted the photograph. The hoses on the ground were used to pump groundwater out of the mine. The mine was located within what is now the 240-square-mile Oronogo-Duenweg Mining Belt Superfund Site, created to clean up lead, zinc and cadmium contamination created during the mining and smelting of the ore from 1848 through the late 1960s. The site is in various stages of cleanup, with more than 2,600 residents' properties now completely remediated.



Send your photo to "Time Exposures," c/o [Missouri Resources](#), P.O. Box 176, Jefferson City, MO 65102-0176. All pictures will be returned via insured mail. Pre-1970 environmental and natural resource photos from Missouri will be considered. Please try to include the time and location of the picture, a brief description and any related historic details that might be of interest to our readers.

STORM WATER RUNOFF: *it's not just water under the bridge*

by Phil Schroeder

photographs by Scott Myers



A concrete channel directs the flow of water in Wears Creek in Jefferson City.

We all enjoy the cleansing effect of a good, hard rain. The rainwater washes undesirable chemicals, particles and film from our sidewalks, streets, parking areas and waterways. This free disposal service from nature is appreciated.

Our storm sewers are designed to quickly get rid of rainfall runoff, or storm water. Curbs, gutters, storm drains and other structures route the water safely away from our populated areas. These systems are defined in our cities as Municipal Separate Storm Sewer Systems, or "MS4s."

But just where does the storm water take the undesirable materials? Most of these systems eventually flow to a stream or lake, where the pollution usually accumulates. The U.S. Environmental Protection Agency (EPA) reports that polluted storm water significantly impairs our use of the nation's waters by reducing the vitality of aquatic organisms and even creating human health hazards. According to the 1996 National Water Quality Inventory, 13 percent of impaired rivers and 21 percent of impaired lakes are affected by urban or suburban storm-water runoff.

Missouri is just learning the full extent of water-quality problems associated with MS4s. Elevated levels of bacteria, metals and polynuclear aromatic hydrocarbons (complex petroleum-related compounds) are being identified in several areas of the state. Water-quality problems also are seen from winter salt use for de-icing roads as well as erosion from construction sites. A general impact also is recognized from mismanaged litter and other solid wastes.

The Missouri Department of Natural Resources developed an EPA-mandated program in 1992 to address storm-water pollution in medium to large municipalities and from medium to large construction activities. EPA recently has initiated another effort to address storm water on a broader scale. Under this expanded program, called Phase II, nearly all cities and construction activities in Missouri, as well as across the nation, will be required to minimize the discharge of contaminated storm water.

Those responsible for managing storm-water systems, and those of us who are served by these systems, will be asked to develop a storm-water management program that addresses pollution in six different ways. EPA defines these ways as the "six minimum control measures." Understanding the six measures recommended by the Phase II project is critical to protecting Missouri's water resources. The six control measures are:

Public Education and Outreach

As citizens, we all have the opportunity to positively affect the quality of life in our communities. Citizen support is essential for a community to improve its environment. Support starts with a clear understanding and appreciation of the community's goals. Some of the strategies available to increase community knowledge about storm-water pollution include developing printed educational materials, holding educational programs, and ensuring easy access to local water-quality experts.

Public Participation and Involvement

Under this measure, community leaders are expected to engage the public in programs that reduce pollution. Communities may bring people together at meetings to share ideas on how to prevent the contamination of storm water. Citizens may be encouraged to join a community clean-up effort or a local panel to explore options for the community to fulfill its water-quality goals.

Illicit Discharge Detection and Elimination

A common goal for cities is to eliminate the entry of wastes into storm-water systems. The direct disposal of wastes down a storm drain can cause high levels of pollutants to enter our streams. Some of the improper discharges to be targeted by the cities for elimination include piping or seepage of sewage into storm-water systems and the dumping of paints, oils, coolants, wash water and toxic substances into drains. Communities may develop a means by which to trace the source of pollutants and pass ordinances to prevent further use of storm drains for wastewater dumping.

Construction Site Runoff Control

Poorly protected construction sites can cause harmful levels of sediments to enter streams and lakes. Cities may develop an ordinance or other regulations to control the flow of sediments from land disturbed by construction activities. Regardless of the method chosen, all construction projects will be required to follow a prescribed set of best management practices, or "BMPs," to achieve the appropriate level of control of erosion and sedimentation.



Collapsed fencing at a Columbia construction site contributes to erosion and sediment pollution.

Post-Construction Runoff Control

Ensuring site maintenance after construction is as crucial as the steps taken during construction. Also, the site developer must plan the needed post-construction maintenance before starting a job. A successful project depends on a plan that ensures the permanency of the control measures chosen. Developers may be encouraged to build in spaces with trees and grass to allow the natural filtration of pollutants from subdivisions and industrial parks.

Pollution Prevention and Good Housekeeping

Preventing pollution by eliminating, reducing or recycling source materials is essential to any responsible environmental program. Sources include pesticides, insecticides, detergents, fertilizers, disinfectants, oil and grease. Cities should encourage the wise use of source materials as a means to achieve their pollution-prevention goals.

The department has begun drafting rules to implement these new requirements. The rules will include steps to address storm-water pollution within municipal and urban boundaries. Permits will be required on construction sites that disturb one or more acres. The previous qualifying size was five acres. Proposed rules are available for public review and comment by contacting the Office of Secretary of State at (573) 751-4015. The draft rules also may be reviewed on the Natural Resources' Web page at [www.dnr.mo.gov/water.htm]. Written questions and comments concerning the draft rules should be directed to: Secretary, Clean Water Commission, P.O. Box 176, Jefferson City, MO 65102-0176.

All of us play a role in managing the waste we generate. Through our efforts, we can give Mother Nature a helping hand, and finish the job a good rain begins.

Phil Schroeder is an environmental section chief in the department's [Water Protection and Soil Conservation Division](#).